(8.)

THE

CEYLON MOSS.

COMMUNICATIONS

READ TO THE

ROYAL MEDICO-BOTANICAL SOCIETY

OF LONDON.

AND PUBLISHED WITH ITS PERMISSION,

BY

GEORGE G. SIGMOND, M.D. F.S.A. F.L.S.

PROFESSOR OF MATERIA MEDICA TO THE SOCIETY.

AND BY

FREDERIC FARRE, M.D. F.L.S.

CONSERVATOR OF THE HERBARIA TO THE SOCIETY.

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TEA,

ITS EFFECTS, MEDICINAL AND MORAL.

BY

GEORGE G. SIGMOND, M.D., F.S.A., F.L.S.,

Professor of Materia Medica to the Royal Medico-Botanical Society, and Lecturer on the Practice of Physic at Sydenham College.

Price Five Shillings.

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AND

MERCURY, BLUE PILL, AND CALOMEL.

Observations on their Use and Abuse.

BY

GEORGE G. SIGMOND, M.D., F S.A., F.L.S.

Price Four Shillings.

Published by HENRY RENSHAW, 356, STRAND.

TO

PHILIP-HENRY,

EARL STANHOPE, F.R.S.,

PRESIDENT

OF

THE ROYAL MEDICO-BOTANICAL SOCIETY,

&c. &c. &c.

My Lord,

It is a duty I owe to the profession of which I am a member, and to the community at large, to offer my tribute of respect and of esteem to your Lordship, as an enlightened cultivator of science, and as a friend of mankind.

For more than twelve years I have enjoyed the constant opportunity of admiring those talents which adorn even the elevated station in which you are placed, and of reverencing those qualities of the heart, which engage the love of those by whom you are surrounded.

I take, therefore, the occasion to dedicate to your Lordship, a volume containing communications read to the Members of the Royal Medico-Botanical Society, over which you have so long and so ably presided, and which owes its existence and its utility to your fostering care, to your unwearied zeal, and to those distinguished exertions, not only literary but medical, which have evinced to the world that it is not rank alone that has obtained the unanimous suffrage of its Members in the choice of its President.

The subject with which I have ventured to associate your Lordship's name is the introduction of a new remedial agent, which I hope will be deemed of sufficient interest and importance to warrant the use of a name, never pronounced but with blessings by the poor, and with expressions of respect by the good.

I have the honour to be, my Lord,

Your Lordship's obedient servant,

GEORGE G. SIGMOND, M.D.

24, *Dover Street, March* 1840.

PREFACE.

The attention of Mr. Previtè, during a residence in the island of Ceylon, was accidentally directed to the uses made by the natives of a moss found on the sea shore. He found that it was extensively employed in the arts, and for culinary purposes; he was led to a minute examination of its properties; and upon observing how nutritious were its powers, he determined to place it in the hands of some of the most eminent of the faculty in Calcutta, by whom it was introduced into practice, and where, for upwards of fifteen years, it obtained the sanction of all those who were familiar with its uses. Mr. Previtè submitted to my examination, in the year 1837, a specimen of Ceylon moss, which he had just imported into this country, and for which he requested the

attention of the Royal Medico-Botanical Society. He placed in my hands the certificates of several most distinguished medical men residing at Calcutta, which spoke warmly in favour of the medicinal and dietetic properties of jelly, and of preparations formed from it. He likewise pointed out to me the analysis which had been made by Dr. O'Shaughnessy, a physician of high and deserved reputation, and Professor of Chemistry to the College of Calcutta. I recommended Mr. Previtè to lay these documents, with his mode of preparation, before the Society in the form of a letter, to be read at one of its meetings. In compliance with the wish I expressed, he drew up a paper, which was read June 28th, and excited considerable interest. It was directed by the Council of the Society that these documents should be printed in the forthcoming number of the transactions, in order to draw the attention of the medical profession to the discovery of this important addition to our therapeutic agents.

In the course of last year, Mr. Battley having learnt that an importation had been made of the

moss into this country, communicated with Dr. Farre and myself on the subject, and we advised Mr. Battley to avail himself of the knowledge and experience of Mr. Previtè in the proper management of the article for public consumption. Mr. Previtè willingly undertook this task, and under his superintendence this important substance has been carefully examined and prepared as an article of diet.

From the information that I have been enabled to collect, I find that other attempts have been previously made to call the attention of some member of the profession to the valuable properties of this nutritious moss; but as the information conveyed by those who were aware of its existence was very limited, and they were not acquainted with the manner in which it could be employed, it did not attract the consideration which it deserves. I was informed by Mr. Savory of Bond Street, a Fellow of the Medico-Botanical Society, generally known as an experienced and well-informed druggist, that the moss had been brought to him by Captain Marryatt, but that as he

could not gain any information further than as to its employment as an article of nutrition by the natives of some of the Asiatic nations, he did not enter upon any investigation of its natural history or its powers on the human economy. He retained the specimen which had been brought to him, and he most gladly received the information that it was likely to prove so useful. Mr. Hudson, likewise a fellow, stated to the Society, that three or four years since it had been also placed before him, and that the individual who was anxious to have it made known to the public in England, designated it as the principal article of diet used at Calcutta by ladies after their accouchement.

Under such promising circumstances, I determined to examine farther into the subject, and when satisfied in my mind that the preparations from the moss deserved the reputation they had acquired, to read a short paper on it before the Medico-Botanical Society, as the Professor of Materia Medica; whilst my valued friend the Conservator, Dr. F. Farre, investigated the natural history, and the general knowledge which had been obtained by scientific persons, and drew up

likewise a short essay. These have been read at one of the evening meetings, and have been the means of rendering the moss familiar to the profession and to the public. Mr. Previtè anxious to avail himself of the opportunity of making this subject more generally known, and believing that the sanction of those who have considered it, would add to the interest that would be felt by the invalid, has suggested that the communications made to the society should be published. To this neither Dr. Farre nor myself could have the slightest objection, fully persuaded that in recommending a light, nutritive, and easily digestible article of food, we are fully borne out by the utility and excellence of the Ceylon moss. The little pamphlet contains only such hints as may assist the public in becoming acquainted with the value of the moss without any attempt to discuss medical questions, or to dwell upon the causes, symptoms, or means of cure of disease; all that is wished is, to show that the members of the Medico-Botanical Society are anxious to give every information that they can glean, by which the health of

man may be preserved, and his days of existence made as free from pain and sorrow as the experience and observations of those who are devoted to medical inquiry can render them.

GEORGE G. SIGMOND, M.D.

CEYLON MOSS.

A Communication read to the Royal Medico Botanical Society, February, 1840.

By George G. Sigmond, M.D., F.S.A., F.L.S., &c. &c.

The Medical Profession, as well as the public, must hail with great satisfaction the introduction into practice of any vegetable aliment which can add to the means we possess, of sustaining the constitution under the effects of disease, and of restoring it to a state of strength and vigour. For, although the *Materia Medica* furnishes us with a long list of remedies, of singular character, and of extraordinary power, yet we are deficient in the simpler means by which disorders may be combatted, alleviated, or prevented. Vegetables, therefore, which are endowed with dietetic as well as medicinal properties, are invaluable treasures; at present we have few of them whose efficacy can at all times be relied upon, and

there are, besides, many objections to their employment. It is true, that amongst the objects embraced in the vegetable kingdom, there may be found some which have obtained for a short time a high character, but these have again been abandoned, from the disappointment resulting from the too high expectations that were formed.

In laying before the Medico-Botanical Society some observations on the moss of Ceylon, it must be remembered that some of our most learned botanists, philosophers, and physicians, have long since taught us to look for considerable advantages yet to be reaped from the various kinds of mosses and sea weeds. Linnæus used the following language:—"*Natura nihil frustra creaverit, posteros tamen tot inventuros utilitates ex Muscis auguror quot ex reliquis vegetabilibus.*" The authority of Ray, of Buddle, Dale, Petiver, Morrison, Sherard, Richardson, Vaillant, Micheli, Haller, Dillenius, Quarin, and Hartmann, may be taken as sufficient evidence that these mosses, of such deep importance to man, have not been altogether overlooked; we find, too, in our medical

writers, mention of several of the humblest cryptogamic plants, as adjuvants in the cure of disease amongst them; *Muscus pulmonarius*, *Lichen terrestris cinereus*, *Usnea*, *Cetraria islandica*, *Chondrus crispus*, *Laminaria saccharina*.

The infinite variety of sea weeds must afford sources of different medicinal and dietetic agency, and that they are deeply prized amongst the eastern nations, is fully proved, from the experience of travellers; and in proof of the high estimation in which they are held amongst the Asiatic nations, on whose shores the subject of my observations so much abounds, the following extract from the voyage of the observant and highly-gifted traveller, Barrow, satisfactorily proves:—" All the gelatinous substances derived from the sea, whether animal or vegetable, are considered by the Cochin Chinese amongst the most nutritious of all aliments, and, on this principle, various kinds of algæ or sea weeds, particularly those genera which are known by the name of Fuci and Ulvæ, are included in the list of these edible plants.

" In the populous islands of Japan, the natives of

the sea coast derive part of their sustenance from various kinds of sea weeds, and from none more than that species of fucus which is called saccharinus. It would appear from Thunberg's account of its leaves being used to ornament and embellish packages of fruit, or other presents offered to strangers, that this plant is in high estimation. The chin-chou jelly of China may probably be made in part of the fucus saccharinus: it would appear, from samples brought to England, that the leaves from which this jelly is made, are taken from three or four species of this extensive genus."

Not only in their ordinary form, or acted upon by the culinary art, are the mosses employed as food; but one of the most admired luxuries of the table in China is the eatable bird's nest formed from them. A small swallow, called, from his peculiar instinct in building this sort of habitation, *hirundo esculenta*, makes his nest from several of these species, and amongst others, it is said, from the Ceylon moss, in the highest and most inaccessible rocks, in deep, damp caves. Craufurd

tells us, that none but those accustomed from childhood to the dangers it offers, can pursue the occupation of collecting these nests, for they are only approachable by a perpendicular descent of many hundred feet, by ladders of bamboo and ratan, over a sea rolling violently against the rocks. When the mouth of the cave is attained, the perilous task of taking the nests must be performed by torch-light, by penetrating into the recesses of the rock, where the slightest slip would instantly be fatal to the adventurers, who can see nothing below them but the turbulent surf making its way into the chasms of the rocks. The high price given for these delicacies is, however, a sufficient inducement for the gatherers to follow "this dreadful trade." The nests are formed of a mucilaginous substance; they resemble ill-concocted fibrous isinglass, and are described as of a white colour, inclining to red; their thickness little more than that of a silver spoon, and the weight from a quarter to half an ounce. When dry, they are brittle and wrinkled, the size nearly that of a

goose's egg. The qualities of the nest vary, according to the situation and extent of the caves in which they are found, and the time at which they are taken; if procured before the eggs have been laid, the nests are of the best kind; if they contain eggs only, they are still valuable; but if the young are in the nest, or have just left it, they are nearly worthless, being dark-coloured, streaked with blood, and intermixed with feathers and dirt. After they are procured, they are separated from feathers and dirt, are carefully dried and packed, and are then fit for market. The best sort are sent to Pekin, for the use of the emperor. The labour bestowed to render them fit for table is enormous; every feather, every stick, or impurity of any kind, is carefully removed, and then, after undergoing many washings and preparations, they are made into a soft, delicious jelly; they are likewise served up in broths and soups; they have the reputation of being nutritious, and gently stimulating. The extravagant prices given for these nests by the Chinese render them a most expensive article of

diet. The sale has become a monopoly of the government, in whose dominions they are found. Meyen, in his voyage round the world, states, that the Japanese had long ago discovered that these costly bird's nests are nothing more than softened sea-weed, and that they now prepare the substance itself in an artist-like manner.

The sea-weed, stigmatized by the Romans as *vilis* and *inutilis*, is likely not only to be useful in the arts and sciences, but, by the skill and experience of the judicious investigator, to be rendered of the greatest importance for the preservation and prolongation of human existence. Java, Sumatra, Macassar, and Ceylon, yield large quantities of them, some of which will become ere long articles of great consequence in trade.

Amongst the benefits which the science of chemistry has diffused is the power of analyzing animal and vegetable substances, and hence of ascertaining in what particular principle of each object resides the medicinal or dietetic agent. Vegetables have been examined, more particularly by the French chemists, with minute attention, and in many in-

stances with great accuracy. It has been found that in the parenchyma of many classes and individuals there exists a peculiar matter, whose striking property it is to afford nutrition to animals during the period of their growth, and their full development, of sustaining them through the vicissitudes to which they are exposed, and of restoring them to health and strength, when their functions have been disordered, or their organs impaired. To this substance has been applied the term amylaceous fecula, and in proportion to the quantity in which it is deposited, to the absence of colouring matter, extracts, or oil, will be the nutritive power of a vegetable; it is still more serviceable, if taken in a proper manner, when a preparation is made from it. It is obtained by bruising certain vegetables in water, and precipitating it from them; it is dry, pulverulent, and white, and when suspended in boiling water, it coagulates, and forms vegetable jelly. This amylaceous fecula exists in the roots, the stems, the seeds, and the fruits of plants, and is separated from them by different mechanical means; the leaves and the

flowers are almost, however, destitute of this substance. In most instances the simplest operation is sufficient to obtain it from the several textures with which it is combined, and all that is required is to bruise the vegetable parenchyma, that contains it, and to agitate the bruised portion in water. There are, however, sometimes gross and heavy matters, woody and fibrous, which demand operations upon a large scale, which are performed in rasping mills; and according to the admixture of various substances, such as extracts, colouring matter, mucilage must be the frequency of washings, and purifications of different kinds. The most acrid, nauseous, and bitter herbs that naturally contain this fecula, may be made to yield it up in a state of purity, if treated by the proper means; but the great object of the botanist, is to point out in what particular families it exists in the form most readily acted upon by the chemist, or from which the powers of the digestive organs will be sufficient to obtain it, without any previous preparatory treatment. However acrid and poisonous the pulp from which the

amylaceous fecula is obtained, it is the same with regard to its intimate nature; although it may differ slightly in colour, in fineness, in apparent texture, in weight, it is still pure, wholesome, mild, and nutritive, and its distinctive character is its assuming the form of a gelatinous, transparent, alimentary substance when acted upon by boiling water; it then wears considerable resemblance to the mucous state; hence chemists have expressed their conviction that the amylaceous fecula is a condensed mucilage, which has been converted, by some law of vegetation, into a dry, pulverulent matter, insoluble in cold water, but which soon recovers its pristine mucilaginous state by the united action of heat and moisture. This opinion is somewhat borne out by watching the development of the cereal grains; wheat may be observed to pass through successive stages, before it arrives at the hard dry state in which its fecula assumes a solid form; it is first gelatinous, then mucilaginous and transparent, and then acquires opacity.

There are many different species of fecula, which

have obtained names, according to the material with which they are combined, or the tribe of vegetables from which they are extracted; the most important are the glutinous, the extractive, the saccharine, the oily, and the lichenous. The cereal grains, and more especially wheat, contain it united with gluten, a substance very different from the other materials of vegetable matter, and which imparts to the amylaceous fecula very distinctive characters. Beans, peas, the leguminous seeds generally, and the acorn and chesnut, have the fecula in combination with an extractive matter, from which it is generally most difficult to separate it. Several roots, the sap of some trees, and the gramineous seeds, when germination commences, have associated with their saccharine matter a nourishing fecula, which is easily divested of the sugar, from the facility with which this latter substance is dissolved in water. A number of emulsive seeds have, in combination, an oily liquid, which may be obtained by expression, leaving a fecula, which is with great difficulty divested of its

unctuous particles. There is a class of vegetables which are almost entirely composed of it, and which obtained the name of lichenous from the lichen islandicus, or Iceland moss, which, until the discovery of the Ceylon moss, was supposed to contain a larger proportion of the nutritive amylaceous fecula, than any other vegetable body, and which Linnæus, and the Academy at Stockholm, recommended to be employed in the north of Europe as bread. Whilst the fecula is thus combined in the different plants, it is likewise observed, that it is in most instances confined to particular organs; thus it is found in the potatoe and in the orchis, only in the tuberous roots; in the gramineous plants, only in their seeds; in the palms it is developed chiefly in the trunks; and in the fruits that are fleshy, it is likewise often to be observed, but generally in a crude state, and united with ligneous and woody fibre; but there are some of the weeds which grow on the sea shore in which it forms almost the whole tissue, and hence anticipations of their great value to man may be formed when they are more generally known. It is a matter of

great importance to society, in every point of view, to ascertain from which of the vegetables fecula may most easily be obtained, for it is not only as a nourishment under enfeebled states of the body that it is worthy of consideration, but as an aliment from which even nations may derive sustenance during periods of scarcity; indeed, this substance forms the most nutritive matter to animated beings, and all the portions of plants which contain it are devoured; numerous classes of living beings, from man down to the humblest insect, seek it with avidity, for the larvæ or the worm preys upon it by its feeble instruments of manducation, and passes through the whole period of its existence upon this globe, buried within the mass; the bird greedily bears it to his nest for his own subsistence, and that of his offspring, whilst immense tribes of animals devour it in its purest state; man, the lord of all, applies the culinary art to it, and from the simplest jelly to the perfect baking or preparation, by heat, in the form of bread, is nourished, and supported by it. Its simplest and most easily digested form is that

which is required for the sick, and that which is most quickly converted into jelly is the most readily dissolved in the stomach; that which is not too highly agglutinated, is also easily digested, and hence the use of the mosses becomes so important.

The presence of a vegetable jelly, strikingly similar in its properties to the amylaceous fecula, is exhibited, upon analysis, in the Ceylon moss. It is to Dr. O'Shaughnessy, a physician of high character and a chemist of great ability, that we are indebted for an examination of the constituents of the vegetable; and in the paper which already appears in the Transactions of the Medico-Botanical Society, will be found the details of a series of experiments which he pursued upon this interesting subject; his object was, to contribute to the chemical history of the moss rather than to give any description: this deficiency, however, has been most ably and satisfactorily supplied by a valuable paper which was read before the society by our Conservator, Dr. F. Farre, who has furnished us with all the information that could be obtained from the natural historian and the traveller. His paper

will be read with considerable satisfaction, as condensing all the knowledge that could be collected from the channels to which he could have access. The result of the analysis of Dr. O'Shaughnessy exhibits the presence in very large quantities of that peculiar principle, the vegetable jelly, as he has designated it, upon which the nutritive power of vegetable bodies so materially depends. More than one half of that which he examined consisted of this valuable alimentary principle; the proportion in which the other ingredients existed, and for a detail of which I must refer you to his own words, is quite sufficient to show that nature has combined in her laboratory, materials so blended together that they cannot react upon each other, which do not in any way interfere with the predominant principle, but which materially assist in developing its powers. The proofs that he has afforded us, that it differs from the Iceland moss in containing no bitter principle, are of the utmost value. For, although no acrid or bitter taste is in the slightest degree

perceptible, it might have been imagined that some portion of the ingredient which renders the Iceland moss not only an unpalatable remedy, but in some instances injurious, might have existed. Chemical tests have decided that question, leaving not the slightest ground for supposition that any noxious or disagreeable quality could be in any way attributed to the Ceylon moss. The processes pursued are so satisfactory, and the analysis so generally worthy your attention, that I rather recommend you to its perusal, than now enter further upon the subject, except to direct consideration to one very interesting fact, that the analysis of the Ceylon moss exhibits a remarkable and important peculiarity, the presence of iron in very small proportion; whilst Dr. O'Shaugnessy has, without attempting to estimate its quantity, pointed out its existence, Mr. Battley has more narrowly examined into the presence of this powerful agent in the restoration of the debilitated system, and he is satisfied that it exists in combination with the amylaceous fecula in sufficient quantity

to produce its tonic effect, and he has entered upon the investigation of the chemical ingredients of the moss not with a view of throwing the slightest doubt upon the accuracy of the distinguished chemist who examined it at Calcutta, but with an anxious desire to ascertain with what degree of confidence he could assist in making the virtues of the substance known to the profession and to the public. Medical science has clearly shown that it is entirely to the uniform diffusion of the chalybeate in infusions or in substance, that the tonic effects of iron are owing. The highly appreciated chalybeate waters derive their efficacy rather to the minute quantities of iron that are held in solution, than to the presence of the mineral in a concentrated form. Where it exists too largely, it becomes a stimulant rather than a restorative, and the worst possible effects have occasionally sprung from too large a proportion of this powerful mineral. In such a combination with a nutritious vegetable aliment as it is found in the Ceylon moss, it promises to afford decided advantage in many states of the nervous and digestive system, in which

healthy tone and vigour require to be imparted by gentle means. On this account in many of those forms of disorder in which the stomach has lost its usual strength, and in which the ever varying symptoms of that proteus like disorder dyspepsia develop themselves, great benefit will be derived from the invigorating influence of the jelly, or the milky food composed of this substance. Taken under such circumstances, between the breakfast and the dinner, together with a biscuit or rusk, it will sufficiently give employment to the organs of digestion, strengthen them, and nourish the constitution, where more aliment would sit heavy, and produce all the discomforts to which the dyspeptic patient is unfortunately too prone.

Amongst the writings that adorn medical literature, are several of the deepest importance to man upon diet and digestion. The great physician of antiquity has left us a work upon these subjects, which has served as a storehouse from which the learned and the wise have taken the richest materials, upon which they have raised new and useful superstructures, and

the name of Hippocrates must ever be first pronounced by those who would discuss dietetics; yet are we even now deficient in productions by enlightened and scientific men, which relate to the means by which the exhausted energies of the body may be recruited, after long and lingering illness, or after those acute diseases which threaten the immediate termination of existence. In the schools of medicine, the *materia alimentaria* is scarcely listened to; however attentive the student may have proved during the discussion of the objects of the *materia medica*, he becomes careless and indolent during the lectures on the subject to which I now advert. The theme is one that does not carry with it the excitement which attends upon the active powers of therapeutic agents; there are no details which prove interesting to a mind, perhaps, already much exhausted by the study of abstruse points; besides which, the minutiæ are thought rather to come within the province of the nurse, and of the immediate attendant upon the sick chamber, than within the department of active science. He, however, who has long been employed in the

practical duties of his profession, who has seen how much may depend upon circumstances apparently trifling, feels that sufficient consideration and investigation have not been bestowed upon the diet of the invalid ; the lectures, the observations of many physicians, have pointed out to us the necessity of inquiries which ought not to be neglected. Often does it happen that, after acute diseases, in which the skill, the judgment, and the resources of the healing art have just rescued a sufferer from the jaws of death, when life has been trembling in the balance, irremediable mischief has sprung from the ignorance or the misplaced indulgence of friends. Relapses more fearful than the original malady, tedious, miserable confinement to the chamber of sickness, have often followed upon inattention to the means by which worn-out nature may be recruited, and the feebleness of the frame with the depression of the nervous energy be rapidly exchanged for health and for vigour. Those who have unfortunately languished under a lingering disease, can best appreciate the satisfaction of advancing, however slowly, towards

restoration, and also the feelings of sorrow and despair, when, from some apparently slight cause, the malady threatens to return.

Invalids are rendered, by the unusual state of the sense of taste and of smell, the worst judges of that nutriment which is best adapted for the circumstances in which they are placed. Unnatural cravings for some particular food, from which, when it has been carefully prepared for them, they turn away with disgust and aversion, is not uncommon. Irritated possibly by contradiction to their wishes, they require and will take food, which they themselves are fully aware they asked for from mere obstinacy; but such caprices are the result of malady, and, whilst they demand the utmost commiseration, must be met with firmness and decision. Probably, however, the most disagreeable position in which the physician is placed, is when he has been watching with anxious solicitude, with trembling hope, the progress of his patient—when he has gradually seen the worst symptoms disappear before his remedies, and has enjoyed the satisfaction of

inspiring confidence in the surrounding friends, he suddenly finds his efforts counteracted, his foresight disappointed, by some error in diet, by the gratification of some morbid taste, or by some forbidden aliment which has been clandestinely conveyed. The most judicious warnings, the most decided opinions, are oftentimes neglected, from an erroneous idea that the patient wants only strength, and that food will give that strength, whilst most probably the digestive organs are perfectly incapable of performing their duty, and that which is unadvisedly taken, will add only fuel to the flames, and overpower the enfeebled frame. To all whose position is around the sick, a few hints upon diet cannot be unacceptable—they may prove valuable.

There is an old medical canon inculcating the necessity of attention to food, and exhibiting how much we depend upon that which we administer for nourishment, *qualis cibus talis chylus*, *qualis chylus talis sanguis*, *qualis sanguis talis nutritio et humores inde secreti*. This maxim is of the highest value

from the first moment of existence to the last, but to no one is it of deeper importance than to the mother suckling her offspring, and much of the future happiness of the being just brought into the world is dependent upon the quantity and quality of the food upon which the parent lives as well during the period of her pregnancy as during that of lactation. The ancients were strongly impressed with the idea that the mental qualities, as well as the corporeal powers, were thus influenced. They attributed the drunken habits of Claudius Tiberius Nero to the infirmity under which his nurse laboured, of drinking; and the epithet they gave him, Calidus Biberius Mero, was obtained through his misfortune in having a drunken woman as his foster parent; the blood-thirstiness of Tiberius was ascribed to a somewhat similar cause. Certain, however, is it that the helpless babe suffers from the errors of diet of its nurse. The simpler the food, the more nutritious, and the more easily digested, the better; and none can be more safely taken than the Ceylon moss. It is infinitely to be preferred to any of the bitter tonics, or austere acids, which not only may produce

infantile convulsions, but occasionally death. The want of precaution upon the part of the nurse, and even the injudicious employment of medicines, has proved destructive; alarming symptoms and death have occurred in consequence of the milk becoming impregnated with sulphuric acid, which is too often given, with infusion of roses and with sulphate of quinine as a restorative to women after lying-in, or with the idea of promoting the flow of milk by using tonics. Small as the dose may seem, yet even four drops of diluted sulphuric acid, given to the nurse two or three times a-day, have produced disordered bowels in the infant, attended with frequent green motions, restlessness, and eventual death. The bitterness of bark or porter, and of aromatic confection, likewise affects the child, and there is scarcely an increased state of sensibility in the tender being that may not be ascribed to some error of the nurse's diet. Pregnant women even affect their unborn fœtus; the poison that a mother has taken in the last moment of her delivery, to terminate her own existence, has been detected in the child. The slightest indiscretion is felt most acutely by the

infant ; hence a mother cannot be too guarded, not only as to the quality of food, and the regularity with which it is taken, but as to the ingredients of which it is composed. Upon the least alteration of her health, even upon the emotions of her mind, will the poverty or the richness of the milk depend; its creamy consistence, its caseous matter is quickly altered, and the infant will then by instinct refuse the breast, until some favourable change in the nurse's diet occurs. During the whole period of pregnancy the jelly, the blanc-mange, the milk formed with the Ceylon moss, will prove a most important article of diet; in the earlier stages, when the stomach sympathises with the new state of the uterine system, one or all of these articles of food will remain when everything else is ejected, and must therefore be prized.

I am persuaded that too high expectations were raised of the value of the Iceland moss when it was first introduced, and that those who so sanguinely published its virtues, were rather led on by their hopes than by their experience. Linnæus,

Scopoli, and Bartholinus, were amongst the earliest of those who inquired into its merits, and they were induced to give their testimony in favour of its employment in pulmonary affections, without exactly stating in what diseased states of the lungs it was serviceable, and they considered the bitter portion of the herb to be the chief agent in the relief of consumption. Modern experience has shown that this bitterness, so little adapted for disordered states of stomach, is derived from sulphate of soda, or from iodine, neither of which have the power of acting upon the lungs beneficially, notwithstanding the vaporous inhalation of the latter substance has been urged with great assiduity. Its effects generally, are striking upon the nervous system, which I have known it to reduce to an extreme point, evinced not only in corporeal debility, but a depression of the mental energy of the most alarming description ; my own experience of iodine leads me to consider it as a dangerous weapon, which has not yet been converted into a harmless instrument of cure by the boasted skill of those who have most employed it. Hertz

of Berlin, and Stoll of Vienna, both have shown that in consumptive cases the bitter principle of the lichen was rather injurious than serviceable, but they were advocates for the mucilaginous parts, and therefore every attempt was made, by boiling, to destroy the bitter principle, and to extract the mucilage. The difficulty, and almost impossibility of effecting this object was pointed out in the *Physical and Medical Journal*, in 1804.

The Ceylon moss abounds in that gelatinous or amylaceous principle which forms the useful ingredient of the Iceland moss, and is perfectly free from the bitter and mischievous ingredient; it must, therefore, supply most advantageously the place of the latter article, where it was formerly recommended, and where it was not only found ineffectual, but occasionally injurious. In the greater number of cases of phthisis the Ceylon moss may be employed in large quantities, so as nearly to constitute the diet of the patient. For this its amylaceous fecula, so largely distributed throughout it, admirablv fits it. In the little volume, by Dr. Reece, entitled *A Treatise on*

the Antithisical Properties of the Lichen Islandicus, and the Medical and Dietetic Management of the different species of Pulmonary Consumption, will be found an elaborate recommendation of the Iceland moss ; but at a later period of his practice he was led in a great measure to abandon a remedy from which he found he had not derived all the success he anticipated, in consequence of the difficulty he experienced in freeing it from the bitterness which even by art at this day we fail to relieve it. He would, I am persuaded, have been a warm advocate of an agent which, possessing all the good qualities of his own favourite, is altogether destitute of anything that renders it objectionable.

The complete failure of the Iceland moss to cure consumption, and the great disappointment which followed upon the expectations that were excited by those who introduced it, naturally lead us not to form such sanguine anticipations of the power of that which comes from Ceylon. We must rest satisfied with results less brilliant, but much more certain. Its efficacy at the commencement of pulmonic dis-

ease, and its power of alleviation of the worst symptoms, and of supporting the constitution under the action of more decided remedics, are the claims that we can urge for its employment, without pretension to an agency which it does not possess.

It is at that stage of the insidious commencement of a disease, whose gradual inroads overthrow the constitution, and whose fatal advance is at first often unseen, that this remedial agent is most serviceable. When there is a disposition to cough—when there is an almost imperceptible increase in the frequency of respiration upon exercise, when the digestive functions are disordered, the stomach often nauseated or fastidious, the bowels constipated, the secretions altered in colour and consistency, there is a necessity for watchfulness. Without being over anxious, without too much tampering, there should be great carefulness as to diet, to clothing, and to exposure to heat or to cold. There is a period at which youth first commences to bloom, and to be fitted for the important duties of life, at which the maxims of health cannot be too sedulously enforced.

When there exists a tendency to cough, it is much easier to check it by the simplest remedies, than afterwards to cure it by the most powerful. The causes which produce it are at first trifling, and it may easily be combatted; neglected, however, it becomes habitual, or the cough which at first was only a symptom of a slight derangement of the mucous surface of the bronchi, or of the stomach, becomes in itself the cause of high excitement of the lungs, and at last of disease of their structure. In such instances the Ceylon moss affords the most important relief, and effects a cure. It allays the irritation of the mucous surface by its demulcent power, it affords a nutriment to the system, perfectly devoid of stimulus, and it strengthens and gives tone to the digestive organs. Its demulcent powers may be developed by forming it into troches, or lozenges, which, slowly dissolved in the mouth, lubricate the mucous surface, and allay the excitement which produces the convulsive effort of coughing. When the windpipe and its branches have been irritated, and this irritation is oftentimes a

source of ulceration, and of complication with pulmonic disease, the moss, in such a form, is most valuable. Tubercles advance to their worst state of suppuration, from slight causes, and they may be arrested before they reach the fatal point by the moss—a remedy simple and mild. Asthma, during the intervals of paroxysm, will be alleviated by means which not only assist in the production of an increased quantity of mucus, but also in restoring health to the digestive organs, which are so generally impaired, and are so often the exciting cause of each attack.

There is a symptom which occurs not only in common catarrh, in acute bronchitis, or in thoracic disease, but is likewise to be observed in plethoric persons, more particularly females, as they advance in life; it is a peculiar tickling sensation, described as occurring in the windpipe, which causes a cough, sometimes of a very harassing nature. It frequently comes on the first thing in the morning, as soon as the individual lifts himself from the recumbent position, or begins to move about, sometimes it follows upon laying down

or changing side; this cough lasts for some length of time, and ceases after some degree of expectoration. Dr. Graves, of Dublin, in one of his very valuable practical lectures, adverts to the subject, and has suggested it as an interesting subject of inquiry; and Dr. Stokes, in his excellent Treatise on the Diagnosis and Treatment of Diseases of the Chest, has not allowed it to pass unnoticed. This sensation of tickling, or of itching, is constantly referred to the situation of the bifurcation of the trachea, or that portion of the windpipe immediately above it; it seems dependent on slight causes generally, although there may be circumstances where it occurs with great severity, which give rise to it, such as elongations of the uvula, or the existence of suppurating cavities communicating with either bronchus. This sensation is oftentimes most difficult to relieve; sometimes an increased flow of mucus produces it, at other times it causes its cessation. The Ceylon moss, allowed slowly to dissolve, in the form of a lozenge, or a spoonful of the jelly, will prove highly serviceable, and more

immediately produce relief than any of the usual forms of lozenge. In most instances, those of paregoric, of lactucarium, or of tolu, completely fail, whilst those of nitrate of potash, of camphor, or of ipecacuanha, increase the irritation.

The vast variety of causes of cough demands considerable investigation; it is as often connected with the digestive and the nervous systems, as with the respiratory and the circulating; it is, although its frequent occurrence in life causes it to be considered a matter of little importance, one of the most valuable diagnostic symptoms upon which the physician forms his judgment, and therefore to prescribe, for all the states known under the name of cough, one remedy would be injudicious, and likewise a mark of ignorance. It may, however, be observed, that the moss is better adapted for the greater number of these affections than other remedies, because it combines more advantages, and is less likely to interfere with the active functions of the animal economy.

During the period of recovery from inflam-

mation of the lungs, or of the investing membrane, from acute diseases of the larynx, or trachea, or any diseases of the chest, the Ceylon moss will be found a most serviceable remedy; in disordered conditions of the mucous membranes, generally, it may be advantageously administered; in hooping cough, and in sore throats, in the more acute diseases, as well as in chronic affections, it will add to the means we possess of alleviating their violence, or of nourishing the system without stimulating.

Those who are called upon to exert their voices in public, are liable to a peculiar sensation about the windpipe, attended with the excretion of a viscid mucus. It is found sometimes a matter of considerable difficulty to allay this irritation—gargles of different descriptions, some containing acids, others astringents; lozenges formed of cayenne, of horehound, of marshmallows, of nitrate of potash, have been tried, whilst some have submitted to the application to the fauces of caustic, and of solutions of sugar of lead, without deriving the slightest advantage. In such cases a composition of the

Ceylon moss, and of proper substances, in due proportion, formed into a lozenge, affords a most material assistance when occasionally taken. The best period, however, for using such lozenges, is on retiring to rest. The following morning it will be found that the uneasy sensation, which those who are accustomed to public speaking can only fully understand, for it is almost impossible to explain the peculiarity, will be either diminished, or it will have ceased altogether. Care should be always taken, in such compositions, that they are not made too sweet, lest they produce thirst and a clammy sensation in the mouth; nor should they be too hard, as they are then apt to cause small tumours upon the gums, or excoriate the palate; the soreness that has thus been occasionally caused by so trifling a circumstance, has been, from ignorance that such lozenges have been employed, ascribed to the use of remedies, and calomel or blue pill has been suspected to have been prescribed or dispensed, where not a particle has been administered, or mercury in any shape.

I will here observe, that experience has shown me

that public speakers recovering from illness find considerable advantage from the use of tar water; if the Bishop of Cloyne had known how beneficial it has proved to those who are called upon for exertion of the voice, he would have dwelt with great enthusiasm upon his panacea. For this particular use a pint of tar should be added to four pints of water, and for about five minutes the mixture should be well stirred and agitated; a wine glass full of this rather unpleasant draught, taken three or four times a day, so as not to interfere with a meal, but at least two hours before it, is well worthy the attention of the barrister, the clergyman, and the professor.

To the dyspeptic patient, the Ceylon moss holds forth great expectation of relief; the variety of forms in which it may be prepared, must be to him a source of considerable comfort; that combination with milk more especially, which has been recommended by Mr. Previtè, will be received with great satisfaction. There are dyspeptic affections which have their prolific source in an irritable state of the mucous membrane of the stomach, often wearing an

aggravated character. These, from their severity, have occasionally been suspected to spring from organic change in structure, though they are but functional disorders. Some individuals who have spent years of wretchedness upon animal diet, who have varied their beverage in every possible manner, who have vainly sought relief from wine, from brandy and water, from ale, and every kind of fermented liquor, who have taken all the stomachics that medical science has furnished, have quickly recovered their lost tone and power, and have been restored to comparative happiness, by a diet restricted to arrow root, to sago, to tapioca, to jellies, to bread, and an admixture of milk, with the different vegetables containing amylaceous fecula. There are three different stages through which the patient has too often to pass in dyspeptic states, according to the process which the food he has taken is undergoing. For decomposition passes through its states of fermentation, first vinous, then acetous, and lastly, putrefactive, in the disordered stomach, precisely as it does in the air. These may be at first diminished in duration,

then in frequency, and at last be entirely checked by diet, which must be light, nutritive, and easily assimilated. A long catalogue of evils may be enumerated, which those who have suffered quickly recognise as their peculiar sorrows, these may find an appropriate remedy in the article of diet which I now advocate. He who has once suffered from the simplest attack of indigestion, who has known its nausea, its oppression, the headache, the thirst, the disagreeable taste in the mouth, the acidity, flatulence, heart burn, night mare, disordered state of the bowels, may form some feeble notion of the miseries of the dyspeptic, but he cannot picture to himself the aversion to food, the sense of oppression and sinking after taking it, the despondency of mind, the disturbed sleep, the harassing dreams, the impaired energy, which accompany this state; still less does he know the fearful symptoms that grow with the functional derangement of the stomach, for every portion of the system so soon sympathises, the distension of the stomach, the spasmodic pain, the sense of painful internal contraction, the eructations, the vitiated

secretions, the cold extremities, accompanied by a white or furred tongue, the alvine discharge performed with difficulty, in consequence either of obstinate constipation, or a frequent desire to evacuate without the absolute power. A picture of the miseries the dyspeptic have to endure, to be faithful, must appear overcharged to those who are not acquainted with them; and the only advantage in marking some of the features, is to show that diet will oftentimes prove more useful than the numerous drugs, which, if they do not benefit the disease, may affect the general system.

The Ceylon moss will be found an excellent article of food, which may be taken after medicines have been employed for the evacuation of the bowels, when gruel, barley water, or any of the usual drinks, keep up too much action; and arrow root too suddenly puts a stop to it. Without at all checking the effects of medicine, it serves to nourish the system, for it does not too soon call upon the stomach and liver for the exercise of those functions which have necessarily been disordered by the drugs employed. In diarrhœa in India, and in dysentery, occurring

there, the moss obtained a high character, and its utility as a nutriment under any circumstances where profuse evacuations from any of the organs occur, leads to the expectation that it will be received as a most important agent in states to which it is unnecessary for me to advert on the present occasion.

In the short paper which I have the honour to read, it is almost impossible for me to point out all the diseases in which this moss may be serviceable; but I must remind you that the great Sydenham has shown to us that the end of our science is to ascertain the stage of disease in which a remedy is useful. He says, " Whoever considers the matter thoroughly, will find that the principal defect in the practice of physic proceeds not from a scarcity of medicines to answer particular intentions, but from the want of knowing the intentions to be answered; for an apothecary's apprentice can tell me in a very short time what medicines will purge, vomit, sweat, or cool; but a man must be much conversant in practice to be able to inform me as certainly which is the properest time of administering any particular remedy

in all the different stages of disease, and throughout the course of the cure." It is upon this point I have laboured as a lecturer on Materia Medica, and it is to this subject I would more immediately wish the attention of those to be directed who will give any remedy a trial. Without this we can arrive at no decided principle, our reasonings must be drawn from actual practice; for in the language of Sydenham, "The most curious disquisitions are only superficial arguments, artfully deduced, and clothed in a beautiful dress, which, like all other things that have their foundation in the fancy and not in the nature of things, will be forgot in time; whereas those axioms which are drawn from real facts will last as long as nature itself."

In the commencement of acute disease, the less that is taken the better; neither the stomach, the liver, nor the imbibing surfaces are fitted for the performance of their usual duties, and the organs subservient to excretion of that which is detrimental to the body, sympathise with the more important powers of life. Nutrition, therefore, becomes neither

practicable nor desirable. In all diseases attended with fever of a striking character, whey is the most useful and the only liquid food that ought to be administered, it quickly passes off by the excretory channel, after it has sufficiently nourished the blood with its invigorating qualities. It is a great and deserved favourite with the French medical men, who clarify it with attention, and sell it under the name of *petit lait*. No restorative that we possess is to be compared with this; it is highly beneficial, and upon this a patient can exist for a considerable length of time.

When the tongue first exhibits the power that the stomach has acquired of taking something more substantial, which it indicates by moisture, and by some degree of natural colour amidst the white, the furred, or the brown coating with which it has been covered, jelly becomes useful; but it must be vegetable jelly, as yet the time has not arrived for animal jelly, whose glutinous material is too often allowed to adhere to the coat of the stomach, and to harass it with the most distressing sensations. Arrow root

will often produce costiveness ; sago is heavy, somewhat exciting, and a flush upon the countenance is often visible after it. Whatever is administered should be taken about half an hour after sleep, and when the desire is expressed for it ; no attempt made, when the patient is reluctant, to administer it; small quantities of jelly only at a time should be given, and a repetition every half hour of a table spoonful of vegetable jelly will be sufficient. The strength of the patient must be the guide whether he is to be raised from the recumbent position, for the purpose of giving him the food that he requires. If it do not fatigue him too much, it is best he should be thus fed.

With regard to the confinement in bed, I would take this opportunity of cursorily observing, that it is a great question whether English practitioners, generally speaking, are not too fond of confining their patients, during fever, to bed, under circumstances which rather indicate that the upright position is more likely to prove salutary. In the days of Sydenham, this confinement to bed was strongly objected to ; he pointed out that in some fevers, bark

is rendered ineffectual by the patient keeping his bed. When the head becomes affected during the presence of fever, indicating a degree of danger, if the strength of the patient be so exhausted that he cannot sit upright, he may lie down upon the bed or couch with his clothes on, but his head must be raised high. "This," as Sydenham observes, "is more necessary when *phrenitis*, *petechiæ*, or purple spots, occur; for, in this case, neither bleeding nor covering the patient thinly in bed, nor the use of any cooling liquors, will remove the fever without sitting up in the day time, inasmuch as the heat of the surrounding air, included in the bed by the coverings, puts the blood into too violent a motion, and the supine posture of the body hurries it violently to the head." In no disease is this so striking as in the *phrenitis* that follows upon fever, where stupor has existed for several days; if the patient be not confined to bed, he recovers his health; although the symptoms have excited the utmost alarm. I have often relieved scarlet fever from its most alarming appearances, by directing that the

patient should be removed from his bed and placed in his clothes upon the couch; and although I have occasionally met with opposition to my injunctions, I have uniformly found the best results. The delirium of scarlet fever, although it is not to be considered an unfavourable symptom, frequently alarms the medical attendant; it generally occurs during the night, and is almost always the result of the position of the sufferer amidst coverings, which prevent exhalation through the skin; if he be allowed to remain in his clothes, and if he be treated with a mild regimen and strict attention to a cool state of the atmosphere, he will have, even in what are termed the worst epidemics, little to fear where ordinary medical attention is given.

As health advances, the vegetable jelly from the Ceylon moss, may be freely given; it may be alternated with the other preparations from it, and it may likewise be employed with milk. Hippocrates was an advocate for the use of boiled milk alone; or in fevers, mingled with water; it has generally been employed since his authority sanctioned it; but it

must be remembered that, although it is more digestible than when in its natural state, it is then more apt to induce costiveness, which indeed is not an unusual consequence of taking milk in any form. The conserve of roses forms a delicate and agreeable addition to milk, and generally obviates this tendency in the invalid. Sugar, too, as the stomach gains strength, assists the recovery, and may more freely be added to the jelly ; a tea-spoonful of brandy is infinitely preferable to a table-spoonful of wine ; and the rapidity with which brandy is imbibed by the vessels of the stomach, renders it far superior to wine, which is too often given in jelly to the sick, producing acidity, distension, and many evils. It is a maxim I would inculcate for the invalid, that brandy should, in proper quantity, be always substituted, even for the purest sherry : tent is also objectionable, though so great a favourite of the old school.

The principal amylaceous substances that have been employed for the sick, are arrow-root, furnished by the *Maranta arundinacea ;* salep, from certain species of *Orchis ;* sago, from the cellular stems of

Sagus farinifera and *Cycas circinalis;* and tapioca, from the *Jatropha manihot.* They are all valuable under certain circumstances, and afford a light and agreeable nutriment. There are, however, several objections to their employment, which have at different times been urged, and which often militate against their use. That arrow-root frequently constipates the bowels, there can be no doubt; but I am not prepared to consider that the eruptions of the mouth, which often attend upon severe sickness, are to be ascribed to it, although such an assertion has occasionally been made. Probably, in some constitutions easily subjected to skin disease, from slight disorders of the digestive canal, this may occur.

All these substances, although highly nutritious, and forming a very considerable article of diet, not for the sick alone, but for the inhabitants of many districts in the East, require that the stomach should retain considerable power of digestion; for they are not immediately soluble in that organ, and it is not at all unfrequent to find the more delicate person flushed and slightly hectic, after a very small quan-

tity of them has been administered, and to hear likewise that they sit like a load upon the stomach. In their mode of preparation, too, they admit of little variety, so that the sick become soon wearied of them; and their mawkish taste, however disguised, and attempted to be altered, serves to render their constant use almost insupportable. Those who have passed through painful operations are oftentimes highly susceptible at every alteration in diet, and are often fretful when no change is obtained for them; under such circumstances, the Ceylon moss cannot fail to prove a most desirable acquisition to our present limited means.

I have had occasion to learn that it has remained upon the most irritable stomachs, where every thing has been rejected,—has proved quite sufficient to allay vomiting when it has been most distressing, and has given more immediate relief than any other means have afforded, in the distressing sickness attendant upon the earlier stages of pregnancy. It will afford an invaluable assistance in that state of constant vomiting attendant upon disordered states of the

liver; where calculi are embedded in the narrow biliary ducts, it will prove most serviceable; for when almost any substance will excite vomiting, if internally taken, this will remain, from its being so easily converted into chyle, and so rapidly imbibed by the stomach. It produces none of that sensation of thirst which is so often complained of as following upon the other nutritious substances, and which is so apt to occur within an hour or two after their employment. No flatulence, no heartburn, no acidity follow upon its use. The numerous testimonies from the highest medical authorities at Calcutta, speak of it in the most forcible language; and I have heard from those who have employed it there for a considerable length of time, statements that fully bear out the strong testimonials offered. Wherever I have had an opportunity of recommending it, I have received every encouragement to pursue my investigation of its benefits still further: in one instance in which Mr. Previtè was kind enough to furnish me with the jelly, it was the first thing that was retained, and eventually led to a complete restora-

tion of the tone and power of the stomach, where its functions had for a considerable period been impaired.

One of the recommendations of the moss of Ceylon is the facility and the quickness with which it may be prepared for use. It demands no culinary skill, nor is much time occupied in giving it the form which is required. The directions which have been laid down by Mr. Previtè, and which are the result of much experience and attention, are exceedingly simple, and are perfectly intelligible to every nurse or domestic in attendance upon the sick. The jelly which it furnishes may be ready in a short time after a wish is expressed, no unusual apparatus is required, but in any room in which there is a fire it may be obtained, so that there is no difficulty, at all hours of the night, in supplying the wants of the invalid. The following recipe which Mr. Previtè has given for the preparation of the jelly, is quite explanatory of the facility attending it, and will be found perfectly correct in all its particulars.

" Put into an open stew pan half an ounce (being

the quantity contained in the cover of the canister) of the prepared moss, and a quart of boiling water. Boil briskly for twenty-five minutes, or until a spoonful of the liquid forms into a firm jelly within two or three minutes after it is taken from the pan. Flavour with wine, a little cinnamon, lemon or orange juice and peel, and sweeten according to taste. Boil the whole for five minutes, and pass it two or three times through a jelly bag or doubled muslin. Leave it *undisturbed*, and it will become a firm jelly in ten minutes. If it be required perfectly clear for table use, add the white of two eggs beaten up into a whip before the second boiling, and allow it to stand for a few minutes away from the fire, with some hot coals on the cover of the pan. When clear, pass it through the jelly bag, and leave it to congeal. Should the jelly be required particularly firm, add an ounce of the moss to the quart of water.

"The moulds best adapted for this jelly are of white earthenware, to which it adheres much less than to tin or copper. No heat is required to separate the jelly from the mould, but a little care is necessary

in turning it out, on account of its brittleness, or want of elasticity. One pound of the prepared moss will make sixteen quarts of jelly."

Amongst the peculiar advantages of the Ceylon moss jelly is the rapidity with which coagulation takes place, its durability, and its delicate and nutritious qualities. The fluid gelatinizes within ten minutes after boiling, long before it becomes cold. In this state it will remain unaltered for many days, even in the hottest weather; a circumstance which gives it a great advantage over every form of animal jelly.

The jelly is agreeable to the palate, is delicate, and marked neither by taste nor smell, so that at the most fastidious moment of caprice it cannot be considered objectionable; it is quickly soluble in the mouth, and sits lightly on the stomach; it may be flavoured according to the wish of the invalid, in the manner directed by Mr. Previtè. Sometimes two drops of the syrup of the balsam of Tolu, of marshmallow, of mulberry, or violet, or of strawberry, may be employed to a pint, to vary the flavour, and

to gratify the wishes of the sufferer for something like novelty. Where a gentle diffusible stimulant is admissible, the same quantity of compound tincture of cardamoms, of cinnamon, of marasquino, of noyeau, of parfait amour, or of essence of roses, may be judiciously prescribed. A table spoonful of the juice of the pine apple, without any additional flavouring matter, gives the most delicate flavour, and most grateful to the nervous person. Where something richer may be required, a blanc mange or Italian cream may be produced from the Ceylon moss, in the following manner, for which Mr. Previtè has likewise given the recipe.

" To make a quart of blanc mange or Italian cream, add to an ounce of prepared moss (or twice the quantity the cover contains) a quart of boiling water, and reduce it by boiling to one third. Strain this and add it while fluid to the milk and other materials, instead of isinglass, and pour the mixture *immediately* into the mould."

One of the simplest, most useful, and most nourishing forms in which it can be conveyed, is

combined with milk, and the following observation made by Mr. Previtè, is of more importance even than those he has made upon jellies and blanc mange.

" The moss boiled in milk or whey, and simply sweetened while boiling, and strained, forms a very nourishing and strengthening article for children, and for all delicate constitutions, especially if taken in the morning."

Gigartina Lichenoides—Ceylon Moss.

A communication read to the Royal Medico-Botanical Society, February 1840,

By Frederic Farre, M.D., F.L.S.

The esculent sea-weed which has recently been brought to this country, under the name of Ceylon Moss, is collected about Jaffina, on the eastern coast of Ceylon. It is not, however, confined to this spot; but appears to be met with on many of the islands of the Indian Archipelago, and probably in the Chinese seas. Rumphius, in his plants of Amboyna, states that it loves the open sea, and is therefore rarely found in the Bay of Amboyna, but is more abundant on the eastern part of Leytimore, on Œliassara, on the flat island of Nussa Cassa in the Bay of Caybolba, and on all the rocky shores of Bally and the eastern side of Java. Doctor

O'Shaughnessey was informed* that it grew abundantly on the eastern coast of Bengal, but Mr. Previtè, who introduced the prepared article at Calcutta, was unable to find the plant on that coast, and procured it wholly from Jaffina. Mr. Crawford, in his History of the Indian Archipelago, without mentioning the coasts where it is collected, briefly observes that it forms a part of the cargo of *all* the Chinese junks. Even the coast of Devonshire has been named by Doctor Greville as one of its localities†. This latter statement, however, turns out to be erroneous, the plant so named having since been ascertained by him to be another species *Gracillaria (Gigartina) compressa*‡.

Its extensive distribution is also indicated by the various names by which it is known in different languages. "It is called by the Malays *Agar Agar*, at Amboyna, *Aysana* and *Aystana;* in Java, *Bulung;* at Macassar, *Dongi Dongi;* and elsewhere *Lottu Lottu*, and *Collocana*" (Rumphius).

* *Trans. Med. Bot. Soc.*, Vol. I., Part IV., p. 186.

† *Cryptog. Flora*, vi. p. 341.

‡ *Algæ. Britannicæ*, p. 125.

The plant has been already described and represented by Rumphius*, Gmelin†, Turner‡, and Agardh§. The first of these writers, indeed, has furnished nearly all the information we have hitherto possessed with regard to the Ceylon Moss. It is found on sandy shelly shores, and on submarine rocks, attached to the latter, and also to loose stones, shells, and fragments of coral. In Bally it is gathered on the rocks, after the sea has retired. It is of rapid growth, soon acquiring its full size, when it is separated by the waves, and thrown ashore, in which state only it was observed by Mr. Previtè at Jaffina. It is not found all the year round, but, in Amboyna at least, about the end of the rainy season. Mr. Previtè resided at Ceylon in April and May, *i. e.* during the rainy season, at which

* *Alga Coralloides, Herb. Amboin.* vi. ch. 56, t. 74, f. 3 and t. 76 f. A. B. C.

† *Fucus edulis, Hist. Fuc.* p. 113. *F. lichenoides, var. ib.* t. 8. f. 2.

‡ *F. lichenoides Fuci.*, Vol. II., p. 124. pl. 118.

§ *Sphærococcus lichenoides,* Syst. Alg. p. 233.

time the weed was common, though not very abundant on the coast.

It is from two to eight inches high, about the thickness of a crow-quill at the base; much and irregularly branched. The branches are cylindrical, filiform, minutely divided, and tapering at their extremities. In substance it is between cartilaginous and gelatinous. Its surface is smooth, slightly reticulated, and so slippery, that to separate it from the rocks, it is necessary first to cover the fingers with lime. The colour is a dull white, which scarcely undergoes any alteration from drying. The fructification is inconspicuous when the plant is dry; but when moist is readily seen to consist of roundish tubercles, smaller than turnip seed, scattered all over the branches, and containing, according to Rumphius, a mass of minute, oblong, dark red seeds. In a bale lately opened at Mr. Battley's, about 1-15th appeared to bear fructification, which was all of one kind, such as I have described, except that it was of the same dull white as the rest of the plant, without the least tinge of red. Nor did Mr.

Previtè notice any red colour in the living plants. It is, however, possible either that the colour of the fructification may have faded, or that it was not yet produced at the season when these specimens were collected. And indeed the fructification appeared immature, as no seeds or spores were visible within it.

Upon the esculent properties of this sea-weed, it is recorded, by Rumphius, that it is generally eaten raw, being merely macerated or washed in fresh water, and then squeezed so as to remove a considerable part of the mucilage and saltness. Thus cleansed, it is eaten raw with atsiar, or dabbo dabbo, or a sauce prepared with lemon juice and a little ginger. It may also be dried after it has been macerated, and in that state be preserved a long time and cooked gently at any future opportunity. But if boiled violently, or kept too long in lemon juice, it loses most of its goodness, and nearly melts away into a mucus.

The same nutritious properties which render this plant so valuable to the Ceylonese, are found by the Japanese in *Laminaria saccharina*, by the natives

of Chili in *Durvillœa edulis*, by the Icelanders in Halymenia palmata, the old *Fucus ovinus*, or saccharine fucus, and by the Irish in *Chondrus crispus*, the Carrageen, but in none of these in an equal degree. The abundance of gelatin which it yields points out this plant as a probable source of the material of which the edible bird's-nests of Japan are composed. Gmelin observes, that it requires to be investigated, how far the famous *Hirundines esculentæ*, whose nests the Chinese have taught the Indians and Europeans to esteem such great dainties, take, according to the generally received opinion, the materials for their nests from the present or similar plants; and Mr. Joinville in a letter to Mr. North, states, in confirmation of this idea, that he has observed in the nests filaments exactly corresponding with this sea-weed, which he calls Jafnapatam moss *. M. Fee, however, is of opinion, that

* "J'ai oui mettre en avant l'idée qu'elle sert en grande partie au petit Alcyon des Isles de l'Est à faire son nid, dont on fait, comme vous savez, une excellente soupe. J'ai en effet observé dans ces nids des filaments qui resembloient parfaitement à cette algue qu'on'a nommé mousse de Jafnapatam."

the real plant is *Gelidium corneum*, to which our Gigartina is nearly allied.

Mr. Previtè, during his residence at Ceylon, found the plant largely employed to furnish a paste or glue, for which purpose, according to the statement of Mr. Crawford, it has long been used by the Chinese. The species most commonly employed in that country as a gum or size to strengthen or varnish paper, and to thicken or give a gloss to gauze or silk, is *Gigartina tenax*, and the present species is little inferior to it.

On the Composition and Properties of the Fucus amylaceus*: by W. B. O'Shaughnessy, M. D., Assistant Surgeon H. C. Service. *Read June* 28, 1837.

" Gentlemen,

" I beg leave to forward to you the results of the analysis you requested me to make of the vegetable substance you sent me, under the designation of an edible moss, and which, as far as I can ascertain, has not been described by scientific writers. It is a very small and delicate fucus, of white colour, and flattened filliform shape. The longest of the separate individuals in the specimen I received, did not exceed

* The name applied by Dr. O'Shaughnessy to the Ceylon moss.

two inches from the ciliary processes corresponding to the root, to the extreme of its ramifications, which were not very numerous or regular. I could not discover any organs of fructification, perhaps owing to the season of the year when the fucus was collected. As it is, however, my chief object at present to contribute to the chemical history of the substance in question, I shall not enter into its description more minutely, but I shall venture, for mere convenience of reference, to apply to it the provisional term of *Fucus amylaceus*, from its remarkable and important peculiarity of containing a large proportion of true starch.

" I proceed to describe the results of the analysis, and I shall subsequently offer a few very brief remarks on the relations the *Fucus amylaceus* bears to other edible congenerous vegetables; and I shall then point out the mode in which its alimentary ingredients may be made most available in culinary preparations.

"*Analysis of the Fucus amylaceus.*

"Sec. A.

"1. Twenty grains of the fucus in its dry state were macerated for twenty-four hours in cold distilled water. A great increase of bulk was produced, the fucus still retaining its natural outline and proportions as if seen through a powerful magnifying lens: on pouring off the water, and removing all mechanically adherent moisture, the twenty grains of the dried vegetable were found to have imbibed of water fifty-four grains.

"2. The decanted fluid, A 1, was neutral to test paper; did not coagulate on boiling; had a strong saline, but no bitter taste when evaporated to the consistence of a syrup; it afforded a flocculent precipitate on the addition of alcohol.

"3. The precipitate, A 2, when collected and dried, weighed 0·80 grains; it was soluble in water, hot and cold; was precipitated by alcohol and sub-acetate of lead; and with all other re-agents gave the usual character of gum.

"4. One half of the fluid from which the gum had been thus separated, A 2, when diluted with water, gave precipitates with the nitrates of silver and baryta, but not with acetate of ammonia, tartaric acid, or chloride of platinum.

"5. The remaining half of the fluid, A 2, evaporated to dryness; and the residuum, calcined on platinum foil, gave a saline mass weighing 0·65 grains.

"From these experiments it is obvious that the fucus under examination differs from the Iceland moss in containing no bitter principle, that it holds in combination 4 per cent. of gum, and 6·50 per cent. of muriate and sulphate of soda.

"Sec. B.

"1. Ten grains of the fucus were cut into very minute shreds, and boiled for twenty-four hours in two ounces of distilled water, which was constantly renewed as evaporation required: when allowed to cool, the liquid gelatinized, the jelly being mixed with an abundance of undissolved shreddy masses.

"2. The jelly, B 1, re-dissolved by boiling, and filtered through muslin, was neutral to test papers; free from bitter taste; transparent and colourless: gave no precipitate with tincture of galls; with iodine gave a faint and very transitory blue tinge when cold; was very soluble in caustic potassa, from which it did not gelatinize; acetic acid added in excess to the alkaline solution, separated the jelly unchanged in the form of a clear coagulum.

"3. A particle of the insoluble residium on the filter, B 2, when quite cold, was agitated with distilled water in a small glass tube, and iodine added; the particle became gradually blue, but the fluid was not affected: the contents of the tube were then

boiled, allowed to cool, and more iodine added, with exactly the same effect—the starch remaining in the particle of fucus, and not being dissolved from it by the boiling water.

" 4. The solid residue, B 2, weighing 3·50 grains, was boiled in alcohol; the alcoholic fluid separated and dissolved, and gave traces of wax.

" 5. The same solid particles, B 2, thus freed of wax, were reduced to a very fine powder by diligent trituration: the powder was boiled in distilled water, the solution filtered and allowed to cool; iodine now struck with it an intensely blue colour; two grains of solid insoluble matter containing no starch were left on the filter in the experiment.

" 6. These two grains were insoluble in water or alcohol, and with the strong alkalies and acids exhibited the characters of ligneous fibres. Macerated, it gave a minute saline residuum, composed of sulphates and phosphates of lime and traces of iron.

" CONCLUSIONS.

" The preceding experiments shew that the fucus under examination is composed of vegetable jelly,

nearly identical with the pectin of Braconnot (experiment B 1 and B 2), true starch (exp. B 2 and B 5), wax (exp. B 4), gum (exp. A 2 and A 3), sulphate and muriate of soda (exp. A 4), sulphate and phosphate of lime and traces of iron (exp. B 6), and lastly, ligneous fibre (exp. B 5 and B 6). These ingredients further existed in the following proportions in one hundred grains of the fucus:—

Vegetable jelly	54·50
True starch	15
Wax	a trace
Ligneous fibre	18
Gum	4
Sulphate and muriate of soda	6·50
Sulphate and phosphate of lime	1
Iron	a trace
	99
Assume the traces of wax, the iron, and loss, at	1
Total	100

"You are of course aware, that several individuals of the Lichen and Fucus families are possessed of

valuable alimentary or medicinal properties; while some, such as the *Cetraria islandica*, or Iceland moss, combine both these virtues in a remarkable degree. The very disagreeable bitterness of the lichen, although removable, it is true, by immersion in an alkaline solution, must ever constitute a material obstacle to its general alimentary consumption. In one important particular, namely, its containing no true soluble starch, the Iceland moss is, moreover, far below the *Fucus amylaceus* in alimentary value. The same observations apply almost as aptly to the celebrated *Cladonia rangiferina*, or rein-deer moss, which is quite as bitter as the former. Among the *Fuci*, several very curious individuals are included; some of which are of known alimentary utility. One of the most singular of these is the *Gelidium corneum*, valuable from the immense quantity of soluble and nutritive pectin which it contains, and from its entering, according to the statement of Mons. Fee, into the formation of the edible swallow's nests of the Javanese highlands. The *Laminaria*

saccharina is interesting from the fact of its containing sugar. It is highly esteemed in Japan, where it is extensively used as an article of diet; being first washed in cold rain water, and then boiled in milk or broth. Another, the *Durvillæa edulis*, of Bory St. Vincent, is sold commonly as a vegetable for the table in the markets of Chili; but I believe it has never been subjected to chemical examination. In Great Britain, the *Chondrus crispus* has recently attracted much attention. This production abounds on the western coasts of Ireland, round the Orkneys, Hebrides, the Scilly Islands, &c. Indeed every where, except on the limestone or chalk maritime districts, it enjoys high popular celebrity as a remedy in phthisis, and in Ireland it is but too well known as the occasional resource of a famishing population. By long decoction it affords a considerable quantity of a nutritious but nauseous jelly; the unpleasant flavour being chiefly owing to the very large proportion of sulphate of soda it contains. Starch, however, does not enter into its composition; so here

this individual also yields in value to the *Fucus amylaceus*, which contains no bitter or unpleasant principle, no iodine, and but a very moderate proportion of sulphate of soda.

"From the preceding remarks the probable value of the *Fucus amylaceus* may be readily inferred. With regard to the best mode of rendering it available as an article of diet, I made several experiments, which I need not describe minutely, but the results of which afford some useful indications.

"In the first place, from the tendency of pectin or vegetable jelly to form insoluble compounds, with saline and earthly bases, it is necessary to steep this fucus for a few hours in cold rain water, as the first step in its preparation: this removes a large proportion, if not the entire, of the sulphate of soda, leaving all the gelatine and starch. It should then be dried by the sun's rays, and ground to a fine powder; I say ground, for cutting or pounding, however diligently or minutely performed, still leaves the amylaceus globules so mechanically protected, and

so closely involved in an external sheath of tough ligneous fibre, that scarcely a particle of the starch can be extracted by boiling, even though the decoction is prolonged for several hours. For the experimental proof of this statement the reader is referred to the analysis, sec. B, 1, 2, 3, and 5. When ground, on the contrary, boiling for twenty-five minutes or half an hour dissolves all the starch and gelatine; the solution, while hot, should be passed through muslin or calico, and thus the ligneous fibre is removed: lastly, the strained fluid should be boiled down, till a drop placed on a cold surface gelatinizes sufficiently.

"With milk and sugar, and flavoured with lemon juice or sherry, this substance, when prepared as I direct, would afford the invalid a pleasant article of diet, especially at sea, where other jellies or their materials cannot be so easily preserved. As I am informed that this fucus is found abundantly on the eastern coast of Bengal, I entertain considerable hope of its being hereafter found available also in

several processes of art, and in various manufactures, to which it would be perhaps misplaced to allude more minutely in the columns of this journal.

"I am, Gentlemen,

"Your faithful servant,

(Signed) "W. B. O'SHAUGHNESSY,

"Assistant Surgeon H. C. Service.

"*General Hospital, Calcutta,*

"*February*, 1834."

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